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ROAD MAINTENANCE

A New Jersey Expert's Views on the Causes of Road Deterioration, and the Remedies Required Under Different Conditions

AN interesting article prepared by County Engineer James Owen, of Essex, on road construction and repair in New Jersey, is embodied in the annual report of State Road Commissioner E. C. Hutchinson. Mr. Owen says that the repair of New Jersey roads hereafter will be a matter of greater care and solicitude than at present, owing to the increasing and varied travel, and he believes that the methods of repair may undergo considerable modification. The public mind has been educated to a high standard, so that medium or inferior surfaces will no longer be tolerated, and the demand for a higher standard of roads has been accompanied by a willingness to furnish the necessary funds for the purpose.

The article gives various causes of road deterioration, including the hammering of horses' feet, tending to loosen the surface, and the pounding of wheels and the displacement of the surface, due to heavy loads and inherent weakness of the road covering. The displacement of the surface by vehicles of extreme weight attaining high velocities is also mentioned. Weather conditions affect the surface to a considerable extent, the frost in winter and prolonged drought at other seasons being especially noticeable. The destruction wrought by washouts is noted, as also the softening of the surface from excessive rainfall. The following paragraphs indicate the scope and tendency of the article:—

"The action of horses' feet occurs only in narrow roads, little used, with a single line of travel, or in the spring of the year when the snow is disappearing and the long caulks of the horseshoes root up the stones. The first trouble is difficult to overcome, except with a coating of screenings, sand or loam, and is apt to be continuous under the conditions noted. The second usually disappears with the spring rains. The grinding up of the surface material by the wheels can only be replaced by the insertion of similar material. The displacement of the surface due to heavy loads, which usually appears in the form of ruts, can be obviated either by recoating the road or filling up the ruts. In filling the ruts, however, the edges should be picked over to a width of six inches before the new material is put on.

"The displacement of the surface due to automobiles is becoming a subject of grave consideration on the part of those having charge of road repair. There seems to be a double action in the process; first, a grinding action, somewhat similar to the ordinary wheel travel; second, a kicking action, throwing the loosened material to the side. In dry, dusty weather the surface of a macadam pavement, after the passage of a heavy automobile at a high velocity, shows an incipient rut of light dimensions, but plainly to be discerned. This is not like the rut formed by ordinary vehicles, which merely displace the dusty surface, but is due to the tearing out of a portion of the consolidated macadam, and the result is a great increase in the rate of deterioration. Fortunately automobiles do not travel in a straight line like a horse and wagon, therefore, the tendency to continuous ruts is not apparent, and so far there is no tendency of the automobiles to break up the surface in any serious manner. With the steady increase of their use, however, such a condition might arise.

"The repairs due to the action of weather can be handled as follows: With macadam, the breaking up of the surface by frost means either a relevelling of the surface before it is dried out or recoating with stone. Such an occurrence with telford is very rare, but when it does happen it necessitates relaying the road in the part affected. When the surface is broken in dry weather a coating of screenings, loam or sand is absolutely necessary unless rain intervenes. The softening of the surface by excessive rains is incidental to the work, but can be greatly modified by good grades and plenty of crown, thereby shedding the water quickly.

"In the treatment of the destruction of surface by heavy rains the degree of damage governs the method. In many cases that used to replace ordinary wear will be sufficient, but if gullies are washed, fresh stones should be put in, and if a dry spell succeed the rain, screenings or loam may be required. The renewal of the surface, made necessary from any one of the above causes, should be made with the same care and on the same principle as the original construction. The material and methods are,

of course, subject to locality, but it is safe to say that the business of building and repairing roads is as much an expert matter as building railroads and bridges, and only those with full knowledge of their business should be put in authority.

"In the early part of the last century railroads superseded highways, but with the introduction of mechanical propulsion on our roads the use of the same has been so vastly increased that their construction and maintenance are on a par with railroads in importance and demand the same skill and intelligence. When we remember that between one and two million dollars is being spent annually in the improvement of our highways, the importance of skilled supervision is at once apparent."

Public Wiring in Minneapolis

THE problem of abolishing all overhead wires, with provision for an adequate distribution system, is engaging the attention of the Minneapolis, Minn., authorities. A recent ordinance creates the office of Outside Electrical Inspector, whose powers include the inspection and general supervision of wires and apparatus, including those of telegraph, telephone and other companies. Other propositions submitted to the City Council indicate still further action. Among these is one amending the existing regulations, so as to empower the authorities to order the several electric companies to construct, each year, a certain mileage of underground conduits in streets to be designated by the City Council.

The cost of burying the wires of the Minneapolis Electric Company has been estimated by Vice-President Bradley at \$600,000. The present underground district was created several years ago, and subsequently extended, but the companies have been slow to respond to the ordinance, claiming that it was unreasonable and excessive. The Northwestern Telephone Company, however, has undertaken to improve its service, and has prepared preliminary plans for conduits aggregating nine miles in length, and to cost approximately \$175,000. The Twin City Telephone Company proposes to construct, during the next two years, approximately 21,000 feet of conduits at a cost of \$22,000. An additional expenditure of \$50,000 will be required to install wires and cables.

Overhead Wires

MAYOR FOBES, of Syracuse, N. Y., has entered upon his second term of office and is devoting much attention to the question of overhead wires. Two ordinances were adopted by the Common Council on January 2, one providing that no telephone company shall erect poles or string wires except upon compliance with an existing ordinance and upon the further condition of filing a written consent to such poles being used jointly for extending the service of any other company. Power is also given the Commissioner of Public Works to erect poles for the extension of any company's service, the company paying a reasonable fee, to be determined by the Council.

The second ordinance requires all telephone companies

to place underground all of their wires within a distance of one and one-half miles from the Erie canal hoist bridge at Salina street within a period of five years from March 1, 1906, each company to lay at least twelve miles of subways each year. The companies are required to file maps annually prior to April 1, showing the streets in which it is desired to construct subways, the Council to designate what streets may be used. Overhead wires may be removed by the Commissioner, and placed in subways.

The Garbage Problem

THE inaugural message of Mayor Sweet, of Grand Rapids, contains the following reference to the difficulties which have been encountered in the attempted solution of the garbage problem in that city. This thoughtful statement is well deserving of general consideration:

"The work of the Commission which is considering the garbage question has proved more difficult than was expected. Information as to the methods adopted by other cities both in this country and in Europe has been obtained and indicates that the Commission is seeking to perform its work with conscientious thoroughness. To the superficial student it would seem as if it would only be necessary for us to copy the methods of the city which is securing the best results, but upon closer investigation there is found to be such a material difference in the character, as well as in the quantity of garbage and rubbish in the various cities of this and other countries that no such simple solution of the problem is possible. The Commission has found it necessary to carefully study our local conditions in order to furnish a basis for comparison. Its final report and recommendation will probably be presented soon, and we have every reason to believe that they will embody the most suitable plan and one upon which we can safely base our action."

A Choice of Paving

A COMMITTEE of business men, of Green Bay, Wis., recently visited Chicago and Milwaukee with the object of examining street pavements and has presented the following report to the Common Council Committee on Streets and Bridges: "We, the undersigned taxpayers of Green Bay, who during the past week have visited one day in Chicago and one day in Milwaukee for the purpose of seeing and examining to our own satisfaction which would be the best pavements for our city, would say we traveled about seventy miles in automobiles in Chicago and twenty-five miles in Milwaukee and made a careful examination of the length of time each pavement was laid, its usage by heavy travel or otherwise, and have come to the conclusion that there are equally good brick as well as asphalt pavements. There are also equally poor pavements; it all depends upon the material used and the workmanship of laying both pavements.

"We therefore recommend to our citizens the use of either brick or asphalt, but give a preference to asphalt for reason of its noiselessness, its sanitary and metropolitan appearance."

MUNICIPAL WORK IN PROVIDENCE, R. I.

PROVIDENCE as a municipality was exhaustively discussed in the inaugural address of Mayor Dyer. The Rhode Island mayor says that "the city is fast becoming metropolitan in character," and makes certain recommendations for improvement in all departments. "It is gratifying to know," he says at the outset, "that the city's bonds have a high standing in financial centers." He states that the "city's sewerage system has been practically completed, and is adequate to the needs of the thickly settled portions of the city." In a few districts, however, notably Olneyville, west of Laurel Hill avenue, and Hope street, north of Cypress street, there is already a demand for sewer extensions.

After referring to the necessity for additional and improved streets, the Mayor refers to the construction of a system of waterworks filters, of which six beds are now in operation. Another year will be required to complete the system, as contracts for new mains have not yet been awarded.

"One important subject requiring attention is the extension of the high-service fire system to protect Olneyville and the Woonasquatucket river manufacturing district. Plans and estimates for this work have already been prepared."

The Mayor believes that better municipal buildings could be obtained if authority were granted him to appoint an architectural adviser to approve plans and specifications prepared by various architects before contracts were awarded. "The system of selecting architects could also be advantageously changed. They should be appointed either directly

by the committee having in charge the erection of the building, and their appointment should be equitably distributed among the competent architects of the city, or they should be selected as the result of a fairly conducted competition. When competitions are considered necessary, an architectural expert should draw up the terms and submit in writing his decision as to the selection of an architect, judged by the relative merits of the plans submitted. It is well known that as competitions have been conducted in the past, many of the competent architects of Providence have felt constrained to decline to submit designs because of the existing conditions, and consequently the city has been confined to a limited choice of plans."

On the subject of the Fire Department, the Mayor says that "it is admitted generally that the service should be extended, and if the city has not sufficient funds for this purpose it would be good, sound business policy to hire the amount needed, inasmuch as the work properly comes within the scope of permanent improvements, and would give the manufacturing interests, along the line mentioned, protection to which they are entitled and which public policy demands should be provided. The entire subject of improving the water service was referred by joint resolution of the city council, No. 382, approved December 2, 1904, to the Committee on City Engineer's Department. This committee was authorized to report a plan for and the estimated cost of installing such additional pumping engines, pipes, mains and other appurtenances as shall be required for the extension of an adequate water supply to all sections of the city."

MUNICIPAL OWNERSHIP ABROAD

THE National Civic League's special committee, which has been entrusted with the investigation of public ownership and operation of public utilities, intends to study the problem in Europe during the coming summer, following therein the example set by many earnest investigators in this field. In the November issue of THE MUNICIPAL JOURNAL AND ENGINEER (page 220) the opinions of Dr. L. S. Rowe, Professor of Political Science in the University of Pennsylvania, were reproduced, these being of special interest as following an extended German tour.

Dr. Rowe's views were, on the whole, favorable to municipal ownership as carried on in the cities which had come under his observation, but this cannot be said of the opinions expressed by Professor F. H. Roberts, of the University of Colorado, who has recently concluded a similar investigation in behalf of the Governor of that State. "From all that I could make out, he writes, the entire municipal ownership system in England and on the Continent is unbusinesslike in the extreme. In the first place, nearly all the towns are failing to make provision for depreciation of the plants—lighting, street railway, water, whatever they are operating—in order to make a better showing for the scheme at present. For

instance, in a number of towns the sinking fund set aside is 1 per cent. or even lower. Seven or 8 or even 10 per cent. is set aside by conservative business concerns in this country, and they are not putting by any more than they deem necessary. In Glasgow, where the street railways are making a great success under municipal ownership—on paper—I found that the city government did much of the work which ought to have been charged to the street-car company. In certain new work that the street-car company had to do to put its lines into a locality not yet tapped, the workmen employed by the city tore down buildings that stood in the way, and even repaved the streets. Not a cent was charged against the street railway company. In many of the English towns the municipal-ownership scheme has caused the tax-rate to soar year by year, until now it has become a terrible burden. Some of the towns have sustained such a drain that householders are obliged to pay a tax of half the amount of rent they give their landlord. For instance, if the renter pays £72 a year in rent, he will pay £36 a year in taxes. This burden is more than men can stand for long, and the end is bound to be revolution or something closely bordering upon it."

CITY GOVERNMENT BY COMMISSION

The Cedar Rapids Gazette has elicited the following expression of opinion, from Mayor S. J. Bennett, of Fort Dodge, on the non-partisan government of cities:—

I am of the opinion that if politics could be eliminated from municipal government it would be of immense value to the general public.

The theory of a government by commission, as a substitute for aldermanic control, is comparatively new in this country. We have only two examples that I know of—the cities of Washington and Galveston—and the abnormal conditions that exist in these cities as compared with any other municipality in the country are so pronounced that it is difficult to determine the advantage of control by commission from their experience.

Washington is governed by a commission appointed by the President. Congress provides the laws and the major portion of the revenues, and besides, the people are largely deprived of a voice in the city government.

Galveston is governed by a commission appointed by the Governor, if I am not mistaken, and there the State steps in and provides a very considerable portion of revenue through a remission of State taxes for a term of years, and the city receives other benefits of a special nature that other municipalities could not hope for; besides, owing to the disaster that befel the city a few years ago the general government made large appropriations that are of material benefit to the city, hence, while the government by commission in those cities has been very satisfactory as far as I am informed, the benefits that would accrue to cities not so favorably situated as to revenue and other special benefits are still uncertain, that is, if we refer to those cities as an illustration of the benefits to be derived from a government by commission.

The facts are, from the light we have, we cannot determine accurately where the benefits would come in.

There are many elements that should be considered that have an important bearing on the question if we would arrive at correct conclusions. Such as: Who would appoint the commission or should it be elected by the people? Should its duties combine the legislative and executive powers, etc.? Would the people be satisfied to confer upon a commission the full power of the present city organization and deprive themselves of the special benefits they now obtain by reason of having a representation on the council more closely identified with their personal interests than they could hope for from a commission? Under the present conditions the city council subserves the interests of the respective localities as far as possible, and business of a general character is often made subservient to private interests, to the detriment of the municipality, and the council is not to blame for it. The councillors are elected, two from each ward, and they are there to obtain the most they can for their constituents and it does not mitigate against their honesty of purpose that they are often unduly influenced by local conditions and sentiment as it exists in their respective wards.

But nevertheless, the general public interest is often sacrificed because of the conditions I have enumerated. Now, in order to substitute the commission plan, a great many changes in the organic law would have to be made before the plan could be put in operation, such as eliminating ward lines, and if the change were made, and the laws changed so as to conform to the requirements of the plan, I see no reason why it should not be successful. It is reasonable to suppose that a commission composed of capable business men, unhampered by other interests than that of the general good, could administer the affairs of a municipality more successfully and economically than is now obtained under the present cumbersome machinery of municipal government.

EXPERIMENTS ON THEATER FIRES

FIRE tests made in Vienna, with a model theater constructed for the purpose of securing results from careful observation, are the subject of a recent report by Consul Rublee, of that city. The initiative in this matter was taken, nearly two years ago, by a committee of the Austrian Engineers' and Architects' Association, charged with the collection of funds for the erection of an experimental theater. This is built of ferro-concrete, to a scale of one twenty-seventh the size of an actual theater, but all the parts of stage and auditorium are provided in it. About forty tests have already been held. "To make these as nearly as possible exact reproductions of theater fires, old theatrical scenery and hangings have been used on the stage and saturated with kerosene, so as to cause a rapid spread of the fire. The observations made were with reference to the possibility of remaining in the auditorium during a theater fire; concerning the atmospheric pressure in the auditorium and on the stage; the temperature at different heights; the condition of the air; the

action of the iron curtain, as well as of the other curtains; the effect on gas, petroleum, and candlelights; the direction of the flames, and the smoke conditions. The results obtained from the fire tests have led to the conclusion that the most effective means of reducing the danger from theater fires is to provide means for the escape of the dangerous gases and smoke generated by the fire on the stage through ventilators on the roof of the stage. It was demonstrated that the immediate operating of such ventilators caused the fire to be confined to the stage to a great extent, and that the spectators in the auditorium received the greatest possible protection by this means. Such ventilators on the stage, working, if possible, automatically, as soon as the fire breaks out, have been proved to be the most certain means of protection to the public, and the greater the number of such ventilators the greater is the success of confining the fire to the stage. Experiments conducted, on the other hand, with closed ventilators showed that the auditorium was, in an incredibly

short space of time, filled with gases, smoke, and flames to such an extent that it would hardly be possible to save the lives of the spectators. The iron curtain in such cases proved an inadequate protection, as the pressure of gases from the stage interfered with its descent. . . .

"After a careful inspection and study of the experiments the German experts conferred with the Vienna architects and engineers and gave out the following opinion as an expression of their joint views:

"(1) That ventilators on the stage are one of the most effective safety measures, and that they should always be built on the roof so far as possible.

"(2) That it has been demonstrated that if the ventilators are opened promptly, there will be a bright blaze on the stage and the presence of people in the auditorium is possible, as it will not be filled with smoke. That the iron curtain is also an indispensable means of protection, and such a drop curtain has shown itself highly effective.

"(3) That electric safety lights have burned well under the most unfavorable conditions and are to be preferred to other lighting."

The results of the experiments are to be used as the basis of changes in the regulations governing the construction of Austrian theaters.

Garbage Disposal at Grand Rapids

AMONG the six bids received by the City Council of Grand Rapids, Mich., the following may be mentioned as offering data of general application and value. The Dixon Garbage Crematory Company, of Toledo, Ohio, offers four propositions, two to remodel the present plant and two to erect a new outfit complete. The bids on the first were \$16,398 and \$25,100 respectively and on the latter \$19,824 and \$36,480. The Decarie Company offers two propositions of \$40,000 and \$45,000 respectively.

A local company, headed by Alvah W. Brown, offered two bids, one for the disposal of garbage alone and the other taking in the collection and disposal. The first offered to dispose of the garbage for 40 cents per ton, the crematory to be turned over to the company for use in connection with a garbage reduction plant, which would be erected outside of the city. The second offered to do the collecting for 3½ cents per service, specifying that the city must furnish at least 6,000 services the first year, the number to be increased yearly to a maximum of 12,000. Under this bid the cost to the city for disposal and collection during the first year would be about \$11,000, gradually rising to nearly \$25,000.

Municipalization at Central Falls, R. I.

THE greater part of Mayor McNally's second inaugural address, at Central Falls, R. I., was devoted to a plea for public support of the proposition to build a municipal electric-lighting plant. Mayor McNally said he believed that natural monopolies should be owned and operated by the public, and that electric lighting had become a monopoly in Central Falls. He dealt with the subject, in part, by saying that "the question of municipal ownership has long since passed the academic stage, and it is practically demonstrated here in our city; all our water, sewer and curbing is done by ourselves at a saving of one-third on the estimated cost by contract."

The Mayor believes that Central Falls could do as well as the increasing number of cities which successfully conduct municipal plants. The present cost of light is \$70 per lamp per annum, and the estimated cost of constructing the proposed plant is \$75,000.

A Year's Work in Minneapolis

DURING the year just closed, the expenditures for street and other improvements in Minneapolis were on an unusually large scale, amounting to \$1,250,000. Of this sum, about \$270,000 represented the city's contribution to the cost of paving, of which the equivalent of 8.1 linear miles, of a standard width of 27 feet, was laid down. New sewers, 9.4 miles in length, were added to the city's system at a cost of \$211,000, and 15 miles of water mains accounted for \$130,000.

In this connection, the statement is made that a reduction of 750 million gallons of water per annum was effected in the 1905 pumpage of water, as compared with that of the year 1900, notwithstanding the normal increase of population in the interval. The increasing use of meters has reduced the former excessive consumption—and waste—of water to the comparatively moderate figure of 64 gallons per head per day.

Pawtucket Mayor for Cheaper Light

THE question of cheaper light and, incidentally, the relations of the city to the Pawtucket Gas Company, forms an important part of the fourth inaugural address of Mayor Higgins, of Pawtucket, R. I. The Mayor believes that there can be no difference of opinion as to the necessity of an immediate and material reduction in the price of gas. "I am, on general principles, opposed to exclusive franchises for long terms, but I believe the city owes it to its citizens to leave no stone unturned to secure concessions at once from the Gas Company which will bring about the desired relief.

"The city is still without a contract with the Pawtucket Electric Company for its municipal lighting. This condition has existed for several years and it costs the city more than \$2,000 every year to continue as we now are, paying the same rates for lighting as existed under the old contract. By making a new agreement with the electric company for a term of from three to five years, we could secure a reduction in price of at least that sum. I therefore recommend that the City Council at once open negotiations with the Electric Company for the making of a short-term contract which will secure us the advantages of the lowest rates now prevailing."

Street Cleaning by Pressure Machines

THE following replies, referring to different makes of machines, show the estimation in which the system of cleaning streets by pressure machines is held by officials whose opportunities for arriving at a sound appreciation of the conditions are widely recognized.

Mr. F. J. Van Loo, Superintendent of Streets, Toledo, Ohio, writes as follows: "We have four of them in use here; we operate them on our principal streets, covering about 50 per cent. of our pavements. The business streets we flush every week and the residence streets about twice a month; we do not use the flushers alone in these districts but have the cart-and-can system and the horse-power sweepers to assist. We are well pleased with system, and are making an effort to increase the number of flushers so as to adopt this mode of cleaning altogether."

The reply received from Tacoma, Wash., through Mr. L. H. Pearson, Chief Clerk to the Commissioner of Public Works, states that the flushers are used to clean eleven miles of paved streets. "Regarding the paying for water, would say that the water supplied to the flushers is from the city's own waterworks. The flushers are entirely satisfactory and the best method of cleaning paved streets so far as our experience goes."

Motor Cars and Dust

THAT the dust nuisance, especially that form of it due to the extension of automobile traffic, is not peculiar to the comparatively inferior roads of this country is shown by a recent report of U. S. Consul Keene, of Geneva, from which it is seen that even the ideal roads of Switzerland fail to secure immunity from this latest plague. "Motor car dust," he writes, "is a perennial pest which renders living in suburban and country homes situated on important roads most unhealthy and uncomfortable. I am informed that it has been found impossible of late to either lease or sell certain villas in the French Riviera, and that the Paradise of the motorist has become the Inferno of the inhabitant. Public opinion in Switzerland, desiring to put a stop to a state of affairs so objectionable, founded in 1904 the Swiss league against road dust, and already good results are shown. After several trials in different roads and streets in Geneva, both the cantonal and municipal authorities applied anti-dust preparations on 36,000 square meters of road (110,610 square feet). The spring was most unfavorable for anti-dust applications, and the material and preparations were not obtained by the authorities until the middle of August last. The preparations mostly used have been hot coal tar and, in a less quantity, hot 'Lambercier asphaltine' (manufactured in Geneva), which is found efficient but expensive, and gas tar with water. Westrumite and apulvite have not given the good results which were expected. In general, however, the results have been satisfactory, and the treatment will be continued next year."

A Year's City Work

THE city of Harrisburg, Pa., has just issued a bulky volume containing the reports of Departments covering the year 1903, a notable feature being the new building ordinance, specifying in detail the wall thicknesses for various classes and heights of buildings, and otherwise providing for safety and uniformity in a matter in which too much latitude exists in many cities. A reduction in the price for street lighting from \$82 to \$47 is accompanied by a lowering of rates for domestic and commercial purposes.

This was probably the busiest year in the history of the City Engineer's Department, 300,000 square yards of paving having been authorized, of which over one-third was laid. In addition to the paving about eight miles of curbing was placed, water mains were laid, and sidewalks and sewers constructed. Mayor McCormick recommends that a special tax be levied on the manholes of the steam heating system and on the poles of the various corporations, which would not only increase the revenues of the city, but also tend to retard the increase in street obstructions.

The value of many of the statistics, notably those referring to births and deaths, is largely nullified by the omission—common to many reports which we receive—of any statement in regard to population.

THE APPLICATION OF WIRELESS TELEGRAPHY to commercial uses is exemplified by the erection of a new station by the German Imperial Government at Norddeich, which is expected to rank as the most efficient hitherto constructed, its range of activity being a circuit of 932 miles. It will convey messages not only to and from Germany, Switzerland, France, Great Britain and Denmark, but also the larger part of Italy, Sweden and Norway, and some parts of Russia and Spain. Norddeich is in the extreme northwestern corner of the German Empire and the station will thus have a special value for communicating with vessels on the Atlantic, far beyond Land's End. The towers are to be 213 feet high.

A STRIKING DECISION, arrived at by the narrow majority of five to four, has been given by the United States Supreme Court, to the effect that the contract between the Knoxville, Tenn., Water Company and the city of Knoxville, giving the former an exclusive contract for thirty years to furnish the city with water, did not debar the city from building waterworks of its own. Contracts of that character, Justice Harlan declared, must always be construed liberally in favor of the public and strictly against the grantee.

GLENS FALLS, N. Y., is setting an example to larger communities by the energy displayed in removing overhead wires. Steps are now being taken to place all lines under public control in proper conduits.

CITY BREVITIES

IRVINGTON, N. J., is to have a General Superintendent of Works, the specified salary being \$600 a year.

SPOKANE, WASH., is preparing for a "cleaning day" next spring, with the idea of making this a permanent institution.

TOLEDO, OHIO, is asked by Health Officer Brand to appropriate about \$4,500 for the provision of a bacteriological laboratory.

PASADENA, CAL., is considering the possibility of consolidation with Los Angeles and has also before it the acquisition of the waterworks.

GREEN BAY, WIS., is considering the relative advantages of paving materials, and a preference for brick over asphalt is shown by the aldermen.

ERIE, PA., has a Municipal League which is growing in numbers and influence and proposes to take an active part, on a non-partisan basis, in future elections.

BINGHAMTON, N. Y., is using bricks for patching trenches cut for sewer and other purposes in asphalt pavements; the system is likely to be extended.

WHEELING, W. VA., contemplates the construction of a garbage crematory to take the place of one built twenty years ago—one of the earliest in this country.

HOUSTON, TEX., is considering an ordinance framed to provide for the construction of side-walks throughout the city, as recommended in Mayor Rice's message.

CUMBERLAND, MD., claims to possess the cheapest public lighting in the country, the cost per arc light being \$34.06 as compared with \$90 before the city erected its own plant.

MUNCIE, IND., is negotiating with the Water Company for an all-round 10 per cent. reduction in the charges for water. The purchase of the plant by the city is also a possibility.

HOBOKEN, N. J., has adopted measures for ensuring that ash garbage cans shall be "of a size that will not cause the streets to look unsightly when they are standing on the curb."

KANSAS CITY, MO., if it accepts the recommendations of a special committee, will build a garbage incineration plant on land adjoining the workhouse. The committee visited plants at Atlanta, Los Angeles and elsewhere. An expenditure of \$75,000 is contemplated.

NEW YORK CITY'S BOARD OF ESTIMATE has appropriated \$1,000,000, to be immediately available, for constructing the proposed memorial bridge to Hendrick Hudson over the Spuyten Duyvil, Riverside Drive; New York. The cost of the structure, when completed, is estimated at \$2,025,000.

THE TRENTON, N. J., WATER BOARD has decided to have all service pipes inspected and all repairs made under the supervision of the Department, at the cost of the owner or tenant in each case. The system of allowing the householder to make repairs, hitherto pursued, has not been found satisfactory.

LETTERS TO THE EDITOR

Tax-Collection Methods

The Editor, MUNICIPAL JOURNAL AND ENGINEER:

Sir:—I wish to say a few words in reference to an article in the December 4th, 1905, issue of the *Municipal News*: "Detroit's Wise Tax System."

The experience in Albany, which is one of the oldest cities in the United States, has not been in accord with the system of Detroit, described as a "wise system" in that article, and which seems to me to be radically wrong, as a similar system was adjudged to be in this city.

The expenditures of a city are not to be made all at one time, but its funds are to be used during the whole year for which the budget has been estimated; therefore, it is unwise to exact a payment from the citizens far in advance of the time at which the city's payments are to be made. There will be very few of the tax-payers to whom their money is not worth more while in their own possession than the 2 per cent. per annum which the city gets for the sum prematurely gathered and hoarded up in the banks against the time of need.

I enclose a copy of the advertisement of Albany's city tax payment, which explains the system used here. You will see that those who pay promptly obtain a small rebate which extends from the first of January to the tenth of February, as a one per cent. deduction from their bills, and from the tenth of February to the first of March as a one-half of one per cent. deduction. From the first of March to the first of April there is a time of flat payment, with no deduction or penalty, and after the first of April a monthly addition to the bills of one-half of one per cent. is made till the end of the year, when the bills are turned over to the County Treasurer for further penalty and final collection.

The result of this system is that a very large proportion of the taxes is paid during the periods of rebate, while the penalties on the delinquent payments can be used to the advantage of those who are more prompt. Furthermore, it is evident that a man in business or one whose money may be worth a great deal to him may defer his payments for a season without a very extreme penalty.

It seems to me that this system, which is the outcome of many years' experience, is a more perfect one for the citizens of a republic like our own than is the hasty collection method of Detroit.

Very truly yours,

HORACE ANDREWS,

M. Am. Soc. C. E.

125 Lancaster street, Albany, N. Y., January 4, 1906.

GAS AT ST. PAUL, MINN., is being supplied at a reduction of five cents per thousand below the price paid in 1905, the present net rate being \$1.05. A similar reduction, making dollar gas, is promised by the Gas Company for 1907.

MUNICIPAL JOURNAL AND ENGINEER

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Our readers are invited to contribute to the MUNICIPAL JOURNAL AND ENGINEER, either in the form of special articles or of letters discussing matters of current interest.

It is also desired that the facilities furnished by the reference library in this office should be widely known and freely used by those interested in municipal affairs. Visitors will be welcomed and provided with conveniences for search, and inquiries by mail will be promptly dealt with.

NEW YORK, JANUARY 10, 1906.

PUBLISHERS' ANNOUNCEMENT

A Change from Monthly to Weekly

THE making of a great publication requires first, as a foundation, a field broad enough and deep enough to attract publishers with the necessary experience and capital to give those interested the kind of information they require; then, a thorough conception of what that information is, and finally, the ways and means with which to accomplish the desired results.

To cover its field, a paper must be equipped to set the pace or at least to keep step with the latest developments and modern progress. Two important and distinct departments are necessary—the editorial and the business—each in competent and strong hands. The editorial department must be independent, recognizing that the reading columns are to be used for imparting timely and authoritative information, free from puffs or bias of any kind. The business department must be in charge of a man capable of surrounding himself with and managing others who are qualified for doing things and keeping everlastingly at a task until the desired end is attained.

The present owners of THE MUNICIPAL JOURNAL AND ENGINEER have had years of successful experience as publishers. After deliberate and careful consideration they decided that the municipal field needed a publication which would stand with its readers as do such publications as *The American Machinist*, *The Electrical World*, *The Engineering and Mining Journal* and others on the same plane in their respective fields. In that belief, they purchased THE MUNICIPAL JOURNAL AND ENGINEER and THE MUNICIPAL NEWS, the latter a weekly publication which has been merged with the former.

THE MUNICIPAL JOURNAL AND ENGINEER will hereafter appear as a weekly. The first issue in each month will be of the same size and general make-up as in the past, and the intervening numbers will, for the present,

consist of sixteen pages. The Supplement of THE MUNICIPAL JOURNAL AND ENGINEER, consisting mainly of contract news, which has been issued weekly for some time past, will form a part of each issue.

With ample capital and the requisites outlined above, the publishers promise those interested in municipal affairs that THE MUNICIPAL JOURNAL AND ENGINEER will be made to stand shoulder to shoulder with the leading publications in other lines of equal importance.

As Others See Us

THE writer of "Cross-Table Chat," an editorial department of our London contemporary *The Sanitary Record*, is good enough to say many kind things of the December issue of THE MUNICIPAL JOURNAL AND ENGINEER in the *Record* of December 14. We extract the following from his remarks and take this opportunity of expressing our appreciation, not merely of the writer's good will towards ourselves, but of the care with which he has evidently studied American local government problems in this and other publications.

After a reference to the differences between English and American civic conditions, especially to the unfortunate uncertainty of tenure prevailing in official appointments in the United States, the writer says that "if a reformation be produced in municipal government, it will be induced by the influence of honest newspapers and journals chiefly devoted to municipal work. Such a journal is that which I have before me, entitled *Municipal Journal and Engineer*, edited by Mr. J. S. Hodgson, A. M. Inst. C. E., who is known to municipal engineers in this country as the author of a paper on "American Sewer Design and Construction," which he read at the Shrewsbury meeting of the Incorporated Association of Municipal and County Engineers. This journal is published at 140 Nassau street, New York, at the low price of 25 cents, 3 dols. per year, and contains about 100 pages quarto of literary and business matter, which I always peruse with interest. The December issue contains a reprint of the editor's paper referred to above, and bright articles by various writers on "The Engineer's Status and Responsibility," "Brick Paving," "Water Filtration," "Municipal Ownership in New York City," "Copper Sulphate Treatment," "Contract versus Municipal Labor," "Shall the City Own Its Streets?" "Literature on Municipal Topics," and other lucid and well-written articles. The sixty advertisement pages which are included within the covers of the journal will be read, I am confident, not only by English municipal engineers, with interest, for the illustrations given of refuse wagons, street sprinklers, street sweepers, steam excavators for sewer trenches, will give them new ideas, but to merchants and manufacturrs in this country it will be an education to them in methods of advertising. The *Municipal Journal* is evidently widely read by public officials in the States. It should be read also as widely by municipal representatives, and the lessons it teaches will bear fruit in due season."

A Lesson in Contracts

IN our issue for December, 1905, we commented upon the relative merits of contract and direct labor, in connection with an article appearing in the same number, and took occasion to deprecate the idea that the contractor's profit was necessarily saved by a resort to the latter method. The city authorities of Boston appear to have been of our opinion, in this respect, in deciding to secure the advantages of contractors' skill and experience in carrying out extensive works, mainly dredging and excavating, for improving the Back Bay Fens. But instead of taking the ordinary course of awarding the contracts after submission of bids, the work was placed in the hands of contractors, selected without competition, at "a price which was theoretically the cost price of the labor and the materials furnished by the contractor, plus 15 per cent. on the cost of labor and 6 per cent. on the cost of materials to the contractor in lieu of profits."

The passage quoted above is taken from the report of Special Counsel Asa P. French, who had been asked, as the result of public indignation, to investigate the expenditure on the work. He finds that a total of \$1,195,705 has been expended in the manner set forth, and that, on a liberal estimate, based on independent studies by three engineering experts, this is more than \$380,000 in excess of what the work ought to have cost. In placing these figures before Acting-Mayor Whelton, Mr. French has been constrained to dissent from the opinion that Mayor Collins (who died September 14, 1905) was merely deceived in approving of this method of letting the work, and doubts whether the implied criticism of that suggestion is not more severe than any which he himself would venture to make. "Whether designedly or not," he writes, "and irrespective of what actually happened, the choice of the 15 per cent. contract, so-called, gave the Superintendent of Streets an opportunity to select his own contractors and to recommend the employment of, and furnished the contractors an incentive to employ, more labor than was necessary, and to put names of men upon the pay-roll who did not, in fact, perform any work at all."

Mr. French gives full weight to the argument usually urged in favor of the adopted method—that it is conducive to thorough, if expensive work—but, except in regard to one small section, he fails to see that it justified the course decided upon in this instance. Even if it had done so, he suggests that the allowance for profit ought to have been a fixed sum, in lieu of a percentage upon the total cost, and his report is clearly written with the conviction that contracts ought to have been let only after free and open bidding upon a carefully prepared specification and enumeration of quantities.

The Chicago Drainage Canal

THE long pending suit brought by the city of St. Louis against the State of Illinois and the Chicago Sanitary District, which has reached the stage of argument before the United States Supreme Court, will be closely fol-

lowed by all who are concerned with the effects of sewage discharge into large bodies of water. The city is intent upon establishing its contention that the Chicago drainage canal, while successful from the point of view of the Windy City, causes pollution of the Mississippi river by the flow into it, through the Illinois river, of the sewage of Chicago, which prior to the completion of the canal, in 1899, was discharged into Lake Michigan, to the manifest danger of Chicago's water supply.

Much will depend upon the view taken by the court of the conflicting testimony in regard to the debated purifying effect of river flow. This is among the vexed questions of sanitary progress in all countries; the dictum of a Royal Commission thirty-five years ago, that no British river was long enough to secure the desired degree of purification, was largely responsible for the efforts still being made to divert sewage from watercourses into which the earlier sewerage systems had been allowed to discharge. The effects of a similar decision in the Chicago case would be far-reaching indeed. As affecting Chicago itself, it would probably mean the closing of an artificial river, on which \$40,000,000 has been expended, together with an entire re-study of the method to be adopted in purifying the sewage of an enormous population. For it is simply stating a truism to say that no thought of reverting to Lake Michigan can be entertained in this connection.

New Views on Hospitals

THE large expenditures on hospitals, at one time regarded as necessary to success, are beginning to be thought not merely extravagant but unwise. This applies with peculiar force to buildings designed for the treatment of consumptives, and the recognition of present tendencies was a marked feature of the Tuberculosis Exhibition recently held in Horticultural Hall, Boston. The opinion was expressed that Boston needs a hospital where treatment and care can be given to persons in such an advanced stage of the disease as to be beyond hope of recovery, and the Riverside Hospital in New York was pointed to as a good example of needs economically met. The houses composing this institution are plain, single-story wooden structures, with pitched roofs and plain sides, closely resembling the old-fashioned cottage houses renting for twelve to fifteen dollars per month in Boston's suburbs. From a hygienic point of view it is readily apparent that infectious diseases hospitals in general should be, by preference, of such a character as to admit of easy renewal, a requirement which will be rendered more easy of attainment by the growing belief in the value of fresh-air treatment of consumptives.

AN ACKNOWLEDGMENT.—We inadvertently omitted to make due acknowledgment, on page 288 of THE MUNICIPAL JOURNAL AND ENGINEER for December, of the use of the illustration "An English Public Bath," for which we are indebted to our London contemporary, *The Municipal Journal*.

THE WEEK'S CONTRACT NEWS

RELATING TO MUNICIPAL AND PUBLIC WORK—THE CONSTRUCTION FIELD—PROPOSALS AND CONTRACTS—

SEWERAGE AND WATER SUPPLY, STREET IMPROVEMENT AND LIGHTING—FIRE EQUIPMENT—

BUILDINGS

STREET IMPROVEMENTS

Hartford, Conn.—City Engineer Ford informs us that the matter of paving in several sections is being considered by a city committee. Definite action must await a report.

Hartford, Conn.—Plans are being prepared to abolish certain grade crossings within the city limits.—Fred L. Ford, City Engineer.

Cincinnati, O.—Bids will be opened, January 19, for improving Grove avenue.—C. C. Richardson, County Auditor.

Cincinnati, O.—Bids will be opened, January 25, for improving Manlo avenue, also Liston avenue, from Portland avenue to Summit street; Ingles avenue, Princeton avenue and Riverside street.—George F. Holmes, Clerk.

Cleveland, O.—Ordinances for improving Canal street, Cowley street and Schiller street, have passed the City Council.—Peter Witt, City Clerk.

Cleveland, O.—The Commissioners have \$303,000 to expend in road improvements and repairs during 1906.

Columbus, O.—The City Council will improve Lexington avenue, Medill street and Harvard avenue.—John T. Barr, City Clerk.

Columbus, O.—The Board of Service has awarded paving contracts, aggregating \$124,737, to several contractors.

Coshocton, O.—Many of the principal streets, including Sixth street, Third street and Park avenue are to be improved in the early spring.

Galion, O.—The City Engineer is preparing plans for paving South Market street.

Lebanon, O.—Mulberry street will be improved according to the plans of the City Engineer.—R. B. Corwin, Village Clerk.

Mansfield, O.—Marion avenue will probably be paved with asphalt early in the spring.

Marion, O.—Bids for \$30,000 bonds for park purposes are invited.—William Fries, City Clerk.

Niles, O.—The Road Commissioners will have all important roads leading out of the city widened, graded and covered with limestone in the spring.

Sandusky, O.—Paving resolutions passed by the Council last year are being considered by the Department of Public Service. Bids will be called for.

Toledo, O.—Bonds will be issued shortly and bids invited for extensive street improvements.—Charles H. Nauts, City Clerk.

Youngstown, O.—Plans are under way

for paving Woodland avenue, Chalmers avenue, Bressett street, Oakhill avenue and West Federal street.

Youngstown, O.—A \$100,000 bond issue will probably be made to cover the preliminary work of road construction in the county.—North Newton, Secretary, Good Roads Commission.

McKeesport, Pa.—The City Council is preparing to pave Greenburg avenue.

Gallatin, Tenn.—The proposition to issue \$100,000 Summer County road bonds was defeated.

Jacksonboro, Tex.—The City Council is preparing to issue bonds for paving.

Norfolk, Va.—Redgate avenue will be improved by the expenditure of \$21,000.

Georgetown, Wash.—An ordinance has been passed for expending \$19,000 for street improvements.

Tacoma, Wash.—A portion of Commerce street will be paved with asphalt, and intersecting streets from Pacific avenue to C street, with sandstone.

SEWERS

Bessemer, Ala.—The City Council has appropriated \$16,000 for constructing sewers.

Douglas, Ariz.—A vote will shortly be taken on \$65,000 bond issue for a sewerage system.—Albert M. Sames, City Clerk; Frank H. Olmsted, Los Angeles, Cal. Engineer.

Lincoln, Cal.—The issuing of sewerage bonds will be voted on shortly.

Colorado Springs, Colo.—Estimates for sewer extensions costing about \$11,000 are being prepared.—R. H. Ashworth, City Engineer.

New Haven, Conn.—The city has issued \$75,000 bonds for sewer improvements, and may issue \$50,000 additional for a new trunk sewer.

Naperville, Ill.—Branch sewers are to be laid in various streets at an estimated cost of \$11,400.—Alvin Scott, Jr., President, Board of Local Improvements.

Peoria, Ill.—Plans for a sewer system have been adopted by the City Council.

Muskogee, I. T.—Cook & Son, Junction City, Kan., were awarded the contract to build ten miles of sewers, 8 to 36 inches; to lay seven miles of 6-inch water mains; and furnish seventy hydrants, and fifty valves and boxes.—M. A. Earl, Chicago, Engineer.

Okmulgee, I. T.—Plans for sewer and water extensions are being prepared by Burns & McDonnell, Kansas City, Mo.

Jeffersonville, Ind.—The Board of Public

Works is considering plans for a complete sewerage system.—V. W. Lyon, City Engineer.

Storm Lake, Ia.—The Iowa Engineering Company, Clinton, Ia., will prepare plans for a complete sewerage system.

Harper, Kan.—Plans and specifications for new sewers have been adopted.

Louisville, Ky.—Mayor Barth favors employing expert sanitary engineers to make surveys and plans for a complete system of sewers.

Detroit, Mich.—Experts from all over the country will be asked to pass on a sewer system for the village of Baton Rouge; cost, \$150,000.—Daniel Barron, President, Town Council.

Morris, Minn.—A sewerage system will be constructed shortly.—C. B. Burpee, City Clerk.

St. Paul, Minn.—The Board of Public Works has reported favorably on constructing sewers in Thomas, Chatsworth and Charles streets, to cost \$28,587.

Newark, N. J.—A bill will be introduced in the Legislature to construct a sewer system in Newfoundland to protect the water supply from possible pollution; estimated cost, including a disposal plant, \$75,000.—Morris R. Sherrerd, Chief Engineer and City Surveyor.

Fulton, N. Y.—The city will expend \$5,000 for the west side trunk sewer.

Akron, O.—A storm sewer will be built along West Buchtel avenue and Garden street.

Barberton, O.—Plans are being prepared for a sewer, one-and-a-half miles long.

Clinton, O.—A storm sewer, of brick or concrete, is to be constructed.—F. E. Myers, City Engineer.

Columbus, O.—The City Council has appropriated \$17,000 for constructing the South avenue sewers.

Findlay, O.—The Board of Service has rejected proposals for the sewer between Sandusky and Hardin streets, and will call for new bids.

Huron, O.—A \$2,000 bond ordinance has passed for constructing sewers.

Lebanon, O.—A sewer will be laid in Mulberry street in the spring.

Marion, O.—Bids will be received, January 15, for constructing sewers in several streets; also for laying cement sidewalks.—William Fries, City Clerk.

Wooster, O.—A resolution for a lateral sewer in Gawne avenue has passed the Council.—Custer Snyder, Village Clerk.

Zanesville, O.—A new sewer costing \$80,000 will be built.—H. C. Pugh, City Solicitor.

Ontario, Ore.—The City Council will issue \$26,000 bonds for constructing a sewer system.

Watertown, S. D.—The Council may authorize building a main sewer from Rice street to the Sioux river; cost, \$6,000.

Olmite, Texas.—The city will issue \$57,000 bonds for drainage purposes.

Centralia, Wash.—The establishment of a \$60,000 sewer system is being considered in Council.

Kelso, Wash.—Bids will be received, January 15, for constructing two miles of sewers.—B. L. Hubbell, Clerk.

WATER SUPPLY

Pacific Grove, Cal.—A \$200,000 reservoir will be built by the Pacific Improvement Company.

Greeley, Colo.—The citizens have voted to issue \$350,000 bonds for a water system.

Hartford, Conn.—A franchise to establish a water system has been granted.

Troy, Idaho.—An issue of \$5,000 waterworks bonds is announced.

Casey, Ill.—A franchise for waterworks has been granted W. W. Jamison and W. E. Strathers.—B. B. Sturtevant, City Clerk.

East Moline, Ill.—The citizens have voted an issue of \$35,000 water supply bonds.

Indianapolis, Ind.—The Indianapolis Water Company is considering plans to increase the water supply of Irvington.

Chickasha, I. T.—The citizens will vote on an issue of \$60,000 water and sewer bonds, January 16.—Burns & McDonnell, Kansas City, Mo., Engineers.

Newport, Ky.—The Water Commissioners will shortly grant a water supply to Clifton district.

Newburyport, Mass.—The Water Commissioners have recommended petitioning the legislature for permission to expend \$75,000 in improving the water supply.—Freeman C. Coffin, Boston, Engineer.

Salem, Mass.—At a joint meeting of the Water Boards of Beverly and Salem, Engineer Freeman C. Coffin, Boston, recommended a filtration plant, to cost \$300,000.—David N. Cook, Superintendent, Water Department.

Detroit, Mich.—The Waterworks Commissioners have purchased a \$65,000 site on which it is proposed to establish a second pumping station.

Marquette, Mich.—The Iron River Village Council has been restrained from issuing \$30,000 bonds for repairing waterworks and the electric-light plant.

Jackson, Miss.—The City Council is considering the issue of bonds for improving waterworks, or constructing a new system.

Albany, N. Y.—Bids for pumping engines for the Quackenbush street station will be received by the Board of Contract and Supply, until January 15.—Wallace Greenlach, Superintendent, Bureau of Water.

Brooklyn, N. Y.—The Board of Estimate has appropriated \$15,000 for improving the Jamaica pumping station.

Canastota, N. Y.—Water bonds amounting to \$70,000 have been sold.

Arlington, N. D.—The City Council is considering the issue of bonds for waterworks.

Cincinnati, O.—Bids for constructing the buildings, foundations and other work for the Western Hills Pumping station will be received January 30.—Aug. Hermann, President, Board of Public Works.

Cleveland, O.—New Burgh Village will issue \$50,000 bonds for waterworks.

East Liverpool, O.—A sixteen-inch main will shortly be laid from the reservoir to Broadway; probable cost, \$12,000.

Ironton, O.—New waterworks will be erected near the south corporation line, and 24-inch mains installed in Third street.

Lorain, O.—The Board of Public Service has adopted the plans of the Pittsburg Filter Manufacturing Company for the pump house and filtration plant, and has ordered a 6,000,000 gallon pump.

Niles, O.—A \$20,000 bond issue will shortly be made to improve the waterworks.

Watonga, O.—The water mains will be extended at a cost of \$10,000, and an electric-light plant built; cost, \$6,000.—G. E. Moore, Town Clerk.

Wooster, O.—Plans are being made to secure a water supply from Apple Creek; cost, \$30,000.

Oklahoma City, Okla.—The City Council has accepted plans prepared by J. K. Davis, Pittsburg, for the new waterworks.

Perry, Okla.—The citizens will vote on issuing \$25,000 water bonds, January 30.

Albany, Ore.—A reservoir and filter plant, to filter 150,000 gallons daily, is to be built by Rhodes, Sinkler & Butcher, of the Albany Light & Water Company.

Independence, Ore.—An issue of \$35,000 bonds has been voted for a municipal water plant.

Philadelphia, Pa.—Bids will be received by the Bureau of Filtration, Department of Public Works, January 23, for building a boiler house and chimney.

Nashville, Tenn.—Surveys are being made for a filter plant.—John T. Ahearn, Superintendent, Waterworks.

Elsinore, Utah.—The matter of constructing municipal waterworks is being considered.

Portsmouth, Va.—The Legislature will be petitioned for permission to issue \$500,000 bonds for a municipal waterworks.

Fort Lawton, Wash.—Bids for constructing a 150,000-gallon steel tank on a 75-foot trestle, will be received January 16, by Captain F. A. Grant, Quartermaster, U. S. Army.

Seattle, Wash.—Plans are being prepared by Assistant City Engineer Scott for a 1,000,000-gallon standpipe to be erected in Volunteer Park; cost, \$60,000.—C. B. Bagley, Secretary, Board of Public Works.

Walla Walla, Wash.—Plans have been accepted by the City Council to issue \$250,000 bonds for a water system.

Chihuahua, Mex.—Bids will be received January 15, for labor and material for constructing water and sewer system.—Rudolfo Valles, President, Improvement Board.

PUBLIC LIGHTING

Douglas, Ariz.—A gas plant, costing \$50,000, will be installed by E. Titcomb, Nogales, and W. Hamaker, Douglas.—Albert M. Sames, City Clerk.

Paeonia, Colo.—The citizens propose establishing an electric-light plant.

Columbus, Ind.—The City Council has passed a resolution to construct a municipal lighting plant.

Cedar Rapids, Ia.—A five-year contract has been made with the Cedar Rapids & Iowa City Railway & Light Company for maintaining 480 arc lights of 2,000 candle power, at \$55 per light. The former price was \$75.

Belleville, Kan.—It is proposed to build an electric-lighting plant, to cost \$20,000, and to operate it in connection with the waterworks.

Osawatomie, Kan.—Bids will be received, April 1, for constructing a \$10,000 electric-light plant.—W. H. Murphy, Superintendent.

Taneytown, Md.—An electric-light plant, costing \$8,000 or \$10,000, is to be erected.—Edward E. Reindollar.

Minneapolis, Minn.—The Paterson Street Lighting Company has been awarded the contract for lighting and maintaining 5,500 gas lamps for one year at \$12.84 per lamp.

Minneapolis, Minn.—The water power at the falls of St. Anthony may be used for lighting the City Hall and other public buildings.—Andrew Rinker, City Engineer.

St. Cloud, Minn.—The Public Service Company will construct a gas plant, to cost \$65,000.—A. G. Whitney.

St. Louis, Mo.—The installation of a municipal electric-lighting plant is being considered.—F. G. Zerbig and Samuel Bowman, members, City Committee.

Reno, Nev.—The question of municipal ownership of the electric-light plant is under consideration.

Theresa, N. Y.—The Theresa Light Company has been granted a franchise to establish an electric-light plant, to be owned and operated by the village.

Minto, N. D.—The construction of a municipal gas plant is being considered.

Columbus, O.—Superintendent Wilcox has asked for the expenditure of \$83,000 for improving the municipal lighting plant.

Galion, O.—The City Council is considering plans to combine street and commercial lighting plants into one system, to cost \$15,000; or installing the Commercial Arc and Incandescent system; cost, \$7,700.—John T. Shea, City Clerk.

Lima, O.—A franchise for an electric-light plant may be granted J. W. Halfhill, Lima, and H. L. Canfield, Delphos.

Xenia, O.—A franchise to furnish light and power has been granted the Citizens' Light & Power Company.

Heppner, Ore.—Municipal water and light plants may be built.

Aberdeen, S. C.—A municipal electric-light plant is to be built when an engineer is selected.—D. C. Washburn, City Engineer.

Trezevant, Tenn.—The construction of waterworks and an electric-light plant is under consideration.

Provo, Utah.—Bids will be invited in the spring for constructing waterworks and an electric-light plant.—Frank C. Kelsey, Salt Lake City, Engineer.

Milwaukee, Wis.—The Finance Committee, City Council, has recommended issuing \$150,000 municipal light bonds.

Toronto, Ont.—The Toronto Electric Light Company will light the city for five years at 19 cents per light per night. The Carbon Light and Power Company secured the contract for gas lamps at \$28.60 each per year.

FIRE DEPARTMENT SUPPLIES

Bellevue, Ky.—The City Council proposes to improve the fire alarm system.

Evan, Minn.—A fire company is being organized.

Glenwood, Minn.—The fire company is being reorganized and new apparatus will be purchased.

Truman, Minn.—A fire company has been organized with W. F. Merrill, President.

Columbus Grove, O.—The City Council will purchase 500 feet of hose.

Lorain, O.—A new ladder truck will be purchased shortly.

Oklahoma City, Okla.—The City Council proposes to buy fire engines.

PUBLIC BUILDINGS

Montgomery, Ala.—The Board of Education is considering erecting a new High School.

Little Rock, Ark.—Provision was made for a \$150,000 City Hall and auditorium by the City Council of 1905 at its last meeting, and the bill was signed by Mayor Lenon.

Auburn, Cal.—Plans are to be prepared by the Board of Supervisors for a \$40,000 High School.

Bakersfield, Cal.—Plans are being prepared for a 10-room High School; cost, \$50,000.

San Diego, Cal.—A new High School, to cost \$135,000, is to be built.—H. S. Allen, Architect.

Jacksonville, Fla.—Bids for furnishing material and erecting a Jail will be received until January 26, by the Board of Public Works.—P. A. Dignan, Chairman; Philip Prioleau, City Engineer.

Pensacola, Fla.—Plans for the new City

Hall are being prepared by Andrew J. Bryan, New Orleans, La.; Fred. Ausfeld, Montgomery, Ala., and Edwards & Walter, Columbia, S. C., the competing engineers.

Atlanta, Ga.—The Board of Education is considering erecting a \$30,000 school at South Pryor and Doane streets, and a \$10,000 primary school near Grant Park.

Pembroke, Ga.—The citizens have voted to issue \$8,000, 5 per cent., school bonds.

Oak Park, Ill.—Plans are being prepared for a three-story, fireproof hospital, to cost \$150,000.—George L. Harvey, Chicago.

Rockford, Ill.—For building a \$100,000 addition to the High School and a new \$30,000 school, the city may issue \$65,000 bonds.

Pauls Valley, I. T.—The Mayor has for sale \$25,000, 5 per cent., 20-year school bonds.

New Orleans, La.—The Committee on Finance has recommended the rejection of bids for repairs to the City Hall, and new bids will be invited.

Natchitoches, La.—A State normal school, costing \$80,000, is to be built.—B. C. Caldwell, President.

Augusta, Me.—Horace Putinton & Company, Waterville, will build the two-story Lawrence High School for \$50,000.

Milford, Mass.—A new armory, costing \$20,000, is to be erected.

Springfield, Mass.—A \$50,000 addition to the Courthouse is to be built.

Three Rivers, Mich.—An additional \$10,000 bond issue is necessary to complete the new High School.

Worthington, Minn.—Plans for a \$35,000 school are being prepared by Chandler & Park, Racine, Wis.

Laurel, Miss.—All the bids received for erecting a High School have been rejected. Alterations will be made in the specifications, and new bids invited.

Joplin, Mo.—The citizens have voted \$25,000 bonds for a building for the Jail and Fire Department.

Kansas City, Mo.—Plans for three schools; the Lykine school, eight rooms; New Morse school, 16 rooms, and the Greenwood school, 16 rooms, are being prepared by Charles A. Smith.

Kansas City, Mo.—The School Board may authorize a \$100,000 training school in Westport.

Potosi, Mo.—The citizens have voted to issue school bonds.

Trenton, Mo.—The citizens will vote on issuing \$12,000 school bonds.

Brooklyn, N. Y.—Plans have been completed for the five-story Board of Health building for the Borough of Brooklyn, for which \$295,000 was appropriated.

Owego, N. Y.—The citizens have voted to erect a \$40,000 school.

Cincinnati, O.—Bids will be opened, January 30, for constructing foundations and buildings for the Western Hills Pumping station, east of Shadwell street, on the

north side of Queen City avenue.—Robert Foster, Clerk, Commissioners of Public Works.

Zanesville, O.—Bids for \$130,000 school bonds are asked for by the Board of Education.

Pittsburg, Pa.—Plans are being prepared by Charles A. Rieger, for a \$50,000 school to be erected in the First Ward.

Pittsburg, Pa.—The citizens of Swissvale have voted \$50,000 bonds for a new school.

Spartanburg, S. C.—Bonds for \$30,000 will be issued for a schoolhouse.

Granger, Tex.—The citizens will vote on an issue of \$15,000 school bonds, January 16.

Laredo, Texas.—The proposition to issue \$40,000 bonds for new school houses was defeated by nine votes at a special election.

Norfolk, Va.—The Henley-Casey Company, Norfolk, will erect the Administration building at the Jamestown Exposition, at \$63,340.

MISCELLANEOUS

Little Rock, Ark.—The City Hospital will be remodeled at an estimated cost of \$2,500.

Long Beach, Cal.—A special election has been called to decide question of issuing \$16,000 wharf bonds.

Los Angeles, Cal.—The County Supervisors will build a \$150,000 bridge across the Los Angeles river, connecting Glendale and Los Angeles, at Ivanhoe road, providing the Park Commissioners donate land to widen the approaches to structure.

San José, Cal.—The citizens have voted against an issue of \$100,000 improvement bonds.

Hartford, Conn.—Plans are ready and bids will shortly be asked for a masonry bridge over Park river at Albany avenue; cost, \$20,000.—Fred L. Ford, City Engineer.

Hartford, Conn.—Fred L. Ford, City Engineer, informs us that plans are being prepared for constructing sewers, to cost approximately \$100,000.

Washington, D. C.—Bids will be received, until January 23, at the Bureau of Supplies and Accounts, Navy Department, to furnish a quantity of naval supplies at Mare Island, Cal., and Puget Sound, Wash.—H. T. B. Harris, Paymaster General, United States Navy.

Pensacola, Fla.—J. N. Hazlehurst, Chief Engineer, Mobile, Ala., has been selected to have charge of the proposed improvements, costing \$750,000.

Arthur, Ga.—The county authorities are considering building a bridge across the Oconee river at Georgia Factory, also an iron bridge at Arthur.

Pekin, Ill.—Bids for removing 45,120 cubic yards of earth for a dredge ditch will be received January 11.—Jesse Black, Jr., Attorney.

For Machines to Drill Blast and Test Holes and Water Wells, write "LOOMIS CO., TIFFIN, O."

Columbia City, Ind.—An ordinance is before the City Council for issuing \$38,000 improvement bonds.

Huntington, Ind.—The City Council is considering erecting a garbage reduction plant.

Indianapolis, Ind.—Bids will be received, February 3, for \$170,000, 3½ per cent., twenty-year, Marion County bridge bonds.—Siras J. Clarke, County Auditor.

Warsaw, Ind.—Plans are being prepared by the County Engineer for a ditch in Clay Township and another in Washington Township.

Leon, Ia.—Two bridges will probably be built across the Grand river.

Sioux City, Ia.—The City Council favors building a \$25,000 garbage plant.

Sioux City, Ia.—Surveys are being made for the Perry Creek conduit, to cost \$250,000, and the Beacon Creek conduit, to cost \$60,000, which the citizens will vote on in March.—J. M. Lewis, City Engineer.

Nevada, Iowa.—The Skunk river drainage system is to be extended into Polk county; cost, \$100,000.

Murray, Ky.—Bids are being received for \$12,400, 5 per cent., five to twenty-year school bonds.—Rainey T. Wells.

New Orleans, La.—Bids, for the erection of seven steel sheds, will be received by the Board of Commissioners of the Port of New Orleans, until February 6.—Hugh McCloskey, President.

Shreveport, La.—Bids will be received, February 13, for erecting complete the superstructure of a structural steel tower for a fire alarm bell; approximate weight, 10½ tons.—C. G. Rives, City Comptroller.

Detroit, Mich.—Bids for erecting a casino on Bells Isle Park, will be received January 15, by the Department of Parks and Boulevards.—R. E. Bolger, Chairman.

Detroit, Mich.—All bids for a garbage plant have been rejected, and new bids will be invited.

Detroit, Mich.—The City Council has received a favorable report on the Junction avenue subway agreement, and the work will probably be started in the spring; cost, \$300,000.

East Jordan, Mich.—The people of South Arm township will vote on issuing \$10,000 bonds for building roads and bridges.

Minneapolis, Minn.—Bids will be received, January 15, by the Board of County Commissioners for repairing and rebuilding several bridges throughout the county.—Hugh R. Scott, County Auditor.

Minneapolis, Minn.—The Waterworks Commission invite bids for iron pipes, valves, hydrants and special castings re-

quired for 1906. The material for 1905 cost \$60,175.

Stillwater, Minn.—The Board of Aldermen is considering plans to build a new bridge over the St. Croix river.

Wright, Minn.—Bids will be opened, January 13, by the Board of Supervisors of Carlton County for \$8,000 road and bridge bonds.

Lexington, Neb.—Bids are asked, until January 10, for building all the bridges that may be needed in Dawson County during 1906.—R. S. Thornton, County Clerk.

Lincoln, Neb.—Bids will be received, January 15, for furnishing a high-duty pumping engine complete, ready for service.—George L. Campen, City Engineer.

East Orange, N. J.—The construction of a garbage disposal plant is under consideration.—William Cardwell, Mayor.

Paterson, N. J.—Allen Hazen, New York, has been recommended for appointment as assistant consulting engineer in the work of ascertaining the best method for sewage disposal.

Carlsbad, N. M.—The Secretary of the Interior has approved the expenditure of \$600,000 for the reclamation of 20,000 acres in Pecos Valley during 1906.

Buffalo, N. Y.—Proposals for excavating in Black Rock Harbor, will be received January 15.—H. M. Adams, Colonel, U. S. Engineer Corps.

Akron, O.—The State Board of Public Works will be asked to expend \$250,000 for the northern division of the Ohio canal and to build concrete locks.—T. B. Paul, Engineer.

Cincinnati, O.—Bids will be received, February 2, for furnishing crush stone for Bridgetown Pike.—C. C. Richardson, County Auditor.

Cincinnati, O.—Bids will be received, January 20, for \$500,000, 3½ per cent., waterworks bonds, redeemable in 1926 and payable, 1946.—Robert B. Foster, Clerk, Board of Trustees.

Cincinnati, O.—The Mayor has signed an ordinance authorizing a \$425,000 bond issue for constructing the Harrison avenue viaduct.

Millersburg, O.—The Commissioners of Holmes County are considering straightening and widening Killbuck creek; cost, \$100,000.

Portland, Ore.—Plans for a \$1,000,000 iron and steel bridge, to span the Willamette river, are being considered by the Portland Port Commissioners.

Donora, Pa.—The Borough Council is considering the selection of a site for a garbage furnace.

McKeesport, Pa.—Plans for the McKeesport and Fortvue bridge to span the Youghiogheny river at Fifteenth avenue are being prepared by Architect Laub, Pittsburgh, and work will begin shortly; cost, \$125,000 or \$150,000.—Gilbert F. Myers; Israel A. Simon; R. W. Pitts.

Philadelphia, Pa.—Chief Webster, of the Bureau of Surveys, will shortly invite proposals for the construction of the concrete bridge over the Wissahickon creek at Walnut Lane; estimated cost, \$190,000.

York, Pa.—The garbage contract has been let to Charles C. Fischer, Reading, for ten years, at \$16,200 per year. A plant will be built.

Wilkesbarre, Pa.—The members of the street committee of the City Council have made an inspection of the route of the Hazleton Traction Company from Ashley to Wilkesbarre. The improvements will cost nearly \$500,000.

Memphis, Tenn.—A new bridge will probably be built over the Southern Railway tracks at Madison street.—J. A. Omberg, Jr., City Engineer.

Nashville, Tenn.—The County Commissioners are considering building a bridge across the Cumberland river.

Barstow, Tex.—The citizens have voted to issue bonds for irrigation purposes.

Bristol, Va.—John B. Newton has donated a site for a \$500,000 hospital.

Roanoke, Va.—The city has voted to issue \$400,000 bonds for public improvements.

Granger, Wash.—Plans and specifications for an overhead crossing of the Northern Pacific tracks on Main street have been received, and the viaduct will be built shortly.

Seattle, Wash.—Bids will be received, January 15, for constructing a 150,000 gallon steel water tank.—F. Grant, Captain.

Wheeling, W. Va.—Improvements costing about \$22,000 may necessitate a bond issue.—John J. Coniff, Attorney.

Kilbourn, Wis.—A dam is to be built across the Wisconsin river to furnish water and power to operate the new electric-light plant.—Capt. William V. Spooner, U. S. Engineer Corps.

Guantanamo, Cuba.—Bids for furnishing iron pipe and fittings, and other materials at the Naval Station, Guantanamo Bay, will be received, January 16, by the Bureau of Supplies and Accounts, Navy Department, Washington, D. C.—H. T. B. Harris, Paymaster General, U. S. N.

Manila, P. I.—Bids for constructing two steel wharves in Manila harbor, will be received April 5.—W. L. Fisk, Lieutenant-Colonel, Corps of Engineers, U. S. Army.

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Proposals

Sewers

CITY OF ATLANTIC, IA.
Sealed proposals will be received at the office of the City Clerk of the City of Atlantic, Iowa, until 7:30 o'clock P. M., January 23, 1906, for furnishing material and constructing about six miles of sanitary sewers, as follows, to wit:

12-inch pipe, 3,716 feet,
10-inch pipe, 9,530 feet,
8-inch pipe, 18,370 feet,

together with 70 manholes, 13 flush tanks and other appurtenances as shown by the plans on file with the City Clerk.

Each proposal to be made on blanks furnished by the city and accompanied in a separate envelope by a certified check, on a responsible bank of Atlantic, Iowa, payable to the City Treasurer of said city, in the sum of one thousand dollars (\$1,000). Bond of successful bidder to enter into a contract to be 50 per cent. of amount of said contract.

Payment for the work will be about two-thirds cash, and the balance in assessment certificates. Work to be completed by October 1, 1906.

Plans, specifications and other details can be seen at the office of the City Clerk of said city.

JNO. J. RAPP, City Clerk.

Sewerage System

GAINESVILLE, FLA., Dec. 29, 1905.
Sealed proposals will be received by the Board of Public Works of the City of Gainesville, Florida, until 3 o'clock P. M., January 25, 1906, for constructing a Sanitary Sewerage System in the City of Gainesville, Florida, and for furnishing material for same. Work will embrace approximately Fifteen Miles of Pipe Sewers from Six to Fifteen Inches in diameter. A certified check for One Thousand Dollars (\$1,000.00) or a satisfactory Guaranteed Bidders Bond must accompany each bid.

Plans and specifications will be on file and may be seen at the office of the Engineer, and copies of the specifications and forms, etc., may be obtained from the Secretary of the Board of Public Works. The right is reserved to reject any and all bids.

W. W. HAMPTON,

Secretary Board of Public Works of the City of Gainesville, Florida.

WM. W. LYON, Consulting Engineer.

Water-Works Supplies

DEQUEEN, ARK.
Bids will be opened February 15, 1906, by L. A. Pearre, at Dequeen, Ark., for the purchase of cast-iron water pipe, valves, pumps and boilers, necessary for the construction of a system of water-works.

Specifications and list of requirements may be had by addressing The O'Neil Engineering Company, Dallas, Texas. All rights reserved.

Waterworks

GREELEY, COLO.

Bids open Feb. 6.

Sealed proposals will be received by the City Clerk until 7 o'clock P. M., February 6, 1906, and thereupon opened, for the furnishing of materials for and the construction of a gravity water supply for the city of Greeley, Colorado. The proposed work will consist of a sedimentation basin and a filtration basin; a pipe line 20 inches in diameter and approximately 38 miles long, to be built of continuous wooden stave, machine banded wood pipe or steel pipe, and a receiving and distributing reservoir. Bids will be received for any portion or for the entire works as stated above. The right is reserved to reject any or all bids, and where a bid covers more than one part of works, one part may be accepted and another rejected.

M. P. HENDERSON, City Clerk.

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Collinwood Shale Brick Co., Rose Bldg., Cleveland, Ohio.
Federal Clay Products Co., 232 5th Ave., Pittsburgh, Pa.
Flint Brick & Coal Co., Des Moines, Ia.
McAvoy Vitriified Brick Co., Philadelphia, Pa.
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SHREVEPORT, LA.

Bids will be received by the City Comptroller,
City of Shreveport, La., for furnishing all labor
and material, and erecting complete the super-
structure of one structural steel tower for fire
alarm bell, approximate weight for bidding will be
10½ tons.

Bids must be made on a ton basis, and must be
made on blanks furnished by City Engineer. Plans
and specifications can be obtained from the office of
City Engineer. All bids must be accompanied by
a certified check equal to 10 per cent. of amount of
bid, as guarantee that contract will be entered into
if awarded.

A bond equal to 50 per cent. amount of work
must be given for faithful completion.

The City reserves the right to reject any and
all bids.

All bids must be deposited in hands of City
Comptroller on or before 6 P. M., Tuesday, Feb-
ruary 13, 1906.

(Signed) C. G. RIVES, Comptroller.

Pumping Engine**NOTICE TO CONTRACTORS.**

Sealed proposals will be received at the office of
the City Clerk of the city of Lincoln, County of
Lancaster, and State of Nebraska, until the hour
of two o'clock P. M., standard time, on the 15th
day of January, 1906, at which time the proposals
will be publicly opened and read, for furnishing a
high duty pumping engine complete ready for ser-
vice, including water and steam connections, all in
accordance with plans and specifications on file in
the offices of the City Engineer and City Clerk.
Bidders may obtain copies of the specifications by
sending to the City Engineer.

Each bid shall be accompanied by a certified
check in the sum of \$500.00, made payable to Be-
man C. Fox, City Treasurer.

The engineers' estimate of the cost of the high
duty pumping engine is \$16,500.00.

The right is reserved to reject any or all bids,
and waive any defect that may be to the city's
benefit.

By order of the City Council, November 13,
1905.

THOS. H. PRATT, City Clerk.

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